AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include the addition of the phrase "Prior Art" as required by the Examiner in the Office Action mailed May 30, 2006.

No new matter is being introduced by the present amendment.

Attachments: Replacement Sheets

REMARKS

Upon entry of the present amendment, claims 1-8 will remain pending in the above-identified application with claims 1-3 standing withdrawn from consideration based upon an earlier Restriction Requirement and claims 4-8 standing ready for further action on the merits.

Claims 4-8 haves been amended. No new matter is being introduced by the present amendment.

For example, claim 1 has been amended to incorporate the features of claim 9. Subsequently, claim 9 has been canceled.

Accordingly, proper consideration of each of the pending claims (i.e., claims 4-8) is respectfully requested at present, as is entry of the present amendment.

Rejections under 35 U.S.C. § 103

Claims 4-9 have been rejected under 35 USC § 103(a) as being unpatentable over Shimoda JP '910 (Japanese Patent Document No. 59-136910).

Applicants respectfully traverse, and request reconsideration and withdrawal of this rejection based upon the following considerations.

Distinction over Shimoda JP '910

Shimoda JP '910 discloses that the previously-magnetized magnet powder is charged in a cavity of a ring vessel, the vessel is rotated in the condition applying the magnetic field, and by applying centrifugal force to act in parallel with the outside magnetic field, the magnet powder is densely molded.

The radially anisotropic magnet of Shimoda JP '910 is manufactured in a vertical magnet field as is apparent from Fig. 3 of Shimoda JP '910. It is noted that FIG. 1 (a) of the present application also describes such technology.

As described in FIG. 1 and at the description on page 1, lines 24-36 of the instant specification, a magnet powder 8 packed in a mold cavity is radially oriented by means of a magnetic circuit in which magnetic fields generated by orienting magnetic field-generating coils 2 are applied toward each other through cores 4 and 5, passing through a die 3.

In Shimoda JP '910, powder is horizontally pressed using a centrifugal molding method. In this method, liquid in the slurry is removed by centrifugal force, and thereby the magnet powder is molded densely.

On the other hand, the present invention provides a method of manufacturing a radially anisotropic ring magnet by vertical pressing in a horizontal magnetic field, as is shown in FIG. 3 of the present application.

Accordingly, the present invention is distinguished from the cited reference in the pressing direction and the magnetic field direction.

More specifically, in the present invention, the magnetic powder is oriented in the magnetic field applied to a radially horizontal direction. The magnetic powder is rotated relative to the direction of the application of the magnetic field and is further oriented in the magnetic field in the different radially horizontal direction.

As is described in the present specification, a radial orientation in directions perpendicular to the direction of the orienting magnetic field generated by the coils cannot be attained effectively by merely molding the core material of a ferromagnet. When a ferromagnet

is present in a magnetic field, the magnetic flux density is increased at the surfaces of the ferromagnet lying in the direction of the magnetic field; it decreases at the surfaces of the ferromagnet perpendicular to the magnetic field, since the magnetic flux tends to be drawn to the ferromagnet in such a way as to enter the ferromagnet perpendicularly. Therefore, when a ferromagnet core is placed within the mold, the packed magnet powder is well-oriented by the strong magnetic field at surfaces of the ferromagnet core which are parallel to the direction of the magnetic field, but is not oriented well at surfaces of the core perpendicular to the magnetic field. To compensate for this, the magnet powder is rotated relative to the magnetic field generated by the coils, either during or after application of the field, and thereby incompletely oriented areas is placed in positions that are parallel to the magnetic field, and subsequently be subject to a higher flux density so as to reorient them.

Further, conducting relative rotation of the magnet powder, either after application of the magnetic field or in a magnetic field which is not more than one-third (1/3) of the initially applied field, is also effective, as recited in claim 4. The areas of the magnet powder that have been initially oriented in this way may be put in positions that are perpendicular to the applied magnetic field in further orientation. However, since the magnetic flux density at such positions is small, the initial orientation is not likely to be disturbed to any significant degree.

Further, with regard to the method of rotating the magnet powder relative to the magnetic field generated by the coil, at least one of the following operations (i) to (v) is carried out either once or a plurality of times after changing the magnetic field each time:

(i) rotate the magnet powder a given angle in the circumferential direction of the mold during application of the magnetic field;

(ii) rotate the magnet powder a given angle in the circumferential direction of the mold following application of the magnetic field, then again apply a magnetic field;

(iii) rotate a magnetic field-generating coil a given angle in the circumferential direction of the mold with respect to the magnet powder during application of the magnetic field;

(iv) rotate a magnetic field-generating coil a given angle in the circumferential direction of the mold with respect to the magnet powder following application of the magnetic field, then again apply a magnetic field;

(v) use a plurality of coil pairs to first apply a magnetic field with one coil pair, then apply a magnetic field with the other pair of coil.

Namely, the rotation in the present invention is conducted in the circumferential direction at a given angle. In other words, the magnet powder is not rotated more than 360°. In the present invention, the relative position of the magnetic powder to be oriented to the magnetic field is only changed in the circumferential direction in the rotation.

On the other hand, the rotation in Shimoda JP '910 is a continuous rotation at a high speed, which generates centrifugal force, so that the liquid in the suspension can be removed and subsequently the dense molding can be formed.

Therefore, the purpose and the function of the rotation in the present invention is quite different from that of Shimoda JP '910.

Thus, as explained above, Shimoda JP '910 fails to disclose or suggest specifically the features of the present invention and to provide any motivation to arrive at the present invention.

Therefore, the present invention is not obvious over Shimoda JP '910.

Double Patenting

Claims 4-9 have been rejected under 35 USC § 101 as claiming the same invention as that of claims 4-6 of US Patent No. 6,984,270 (US '270).

Upon entry of the current amendment, the present invention (claims 4-8) is further distinguished from claims 4-6 of US '270.

Accordingly, Applicants respectfully submit the rejection of double patenting has been rendered moot and request that the Examiner withdraw this rejection.

Nonstatutory Obviousness-Type Double Patenting

Claims 4-9 have been rejected on the grounds of nonstatutory obviousness-type double patenting over claims 15-17 of co-pending Application No. 11/229,660.

Applicants have submitted herewith a Terminal Disclaimer.

Accordingly, Applicants respectfully submit that the obviousnesa-type double patening rejection has been rendered moot and request that the Examiner withdraw this rejection.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of the pending claims 4-8 are allowed under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Gerald M. Murphy, Jr. (Reg. No.

28,977) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: August 30, 2006

Respectfully submitted,

By

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Attachments: As Noted